

Synopsis of Flowable Composite Resins (Project 96-69) (01/97)

Composite resins have become one of the most commonly used restorative materials in clinical dentistry. Since their introduction over 30 years ago, they have undergone considerable compositional change. This fine tuning has resulted in an overall improvement in their handling characteristics, physical properties, and esthetics. In some clinical situations, however, the relatively high viscosity of many brands of composite makes them difficult to handle and place. Restoring class V lesions, for example, can be particularly frustrating with some composite resins because of their thickness and tackiness. Because of the increasing demand by patients for esthetic, directly-placed, resin restorations, manufacturers sensed a need for esthetic, lower-viscosity composite resins that can quickly and easily be placed.

"Flowable" composite resins have been marketed to meet this perceived need. Their percentage filler content by weight (50% to 70%) is less than that of traditional hybrid composite resins (70% to 80%) which gives them a lower viscosity and, their manufacturers contend, excellent handling characteristics. A growing number of these products have been introduced in the last year and although they have certain similarities, enough differences exist to make distinguishing among them difficult. Because of this confusion, supply personnel often find it a challenge to gather basic compositional, packaging, and price information for flowable composites. In order to make this process less trying and time-consuming, DIS has compiled a series of synopsis tables presenting this information for eight flowable composite resins. It is important to note that the information in the tables was supplied by the products' manufacturers.

As mentioned earlier, certain similarities exist for the flowable composites. First, they generally are hybrid composite resins and have an average filler particle size of approximately 1 micron. The majority are packaged in syringe form and offer a wide variety of shades indexed to the Vita shade guide. Finally, according to their manufacturers, all are radiopaque and light activated.

As with many new products, there is a need for more information on flowable composites. In particular, information about their physical properties, such as strength, color stability, and wear resistance, is lacking. Unfortunately, few studies have been published that provide information on these properties. It is critical that researchers and clinicians learn this information because a composite resin's properties have an important influence on its clinical performance.

Clinical studies are also needed. As indicated by the tables, recommended uses for flowable composites differ from brand to brand. It is important to perform well-controlled clinical studies to ensure that these products can be successfully used for the purposes for which their manufacturers recommend them.

Product	Æliteflo	FI Restore	Flow-It
Manufacturer	Bisco Dental Products 1500 West Thorndale Ave Itasca, IL 60143 (800) 247-3368 (800) 247-3368 FAX	Den-Mat Corporation P.O. Box 1729 Santa Maria, CA 93456 (800) 433-6628 (805)922-8491 (805) 922-6933 FAX	Jeneric/Pentron, Inc. 53 N Industrial Plains Rd Wallingford, CT 06492 (800) 243-3100 (203)265-7397 (203) 284-3310 FAX
Recommended Uses	class IIIs, Vs, and small class IVs; small core build-ups; cementing porcelain veneers and temporaries; repairing margins; splinting; tunnel preps; class I and II liner	small class IIIs, Vs, and VIs with difficult access; repairing margins, pit and fissure sealing; blocking out undercuts; tunnel preps	class Vs, small class Is, IIIs, and IVs; direct resin veneering; repairing porcelain and marginal defects; small core build-ups
Contents of Kit	five 1.5-gm syringes each of shades A1, A2, A3.5, C2, and D3; 50 disposable, angled, 20-gauge needle tips; instructions and Material Safety Data Sheet	nine 1-gm syringes each of shades A2, A3, A3.5, B1, B2, B3, C2, C3, and opaque; syringe tips	four 1-mL syringes each of shades A2, B2, C3, and universal opaque; ten 22-gauge bent needle tips; instructions
Shades Available	A1, A2, A2-O, A3, A3.5, A5, B3, C2, C3, D3, opaque-white, and trans-incisal	A2, A3, A3.5, B1, B2, B3, C2, C3, opaque	A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4, clear, universal opaque, gingival light, dark
Composite Type	hybrid	submicron hybrid	microfil
Matrix	Bis-GMA and proprietary elastic long-chain monomer	Bis-GMA	Bis-GMA

Product	Revolution	UltraSeal XT Plus	Star Flow
Manufacturer	E&D Dental Products71 Veronica Avenue STE 3 Somerset, NJ 08873 (800)526-4911 (908) 249- 6000 (908) 249-3535 FAX	Ultradent Products, Inc. 505 West 10200 SouthSouth Jordan UT 84095 (800) 552-5512 (801) 572-4200 (801) 572-0600 FAX	Danville Engineering 2021 Omega Road San Ramon, CA 94583 (800) 827-7940 (510) 838-7940 (510) 838-0944 FAX
Recommended Uses	class IIIs and Vs; select- ed class IVs; pit and fissure sealing; repairing porcelain; cementing veneers; core build-ups	pit and fissure sealing; initial layer of composite restorations; micro- retentive restorations	class I - V (class II low abrasion applications); cavity lining; core build- ups; repairing dentures, porcelain, crown margins, and temporaries; pit and fissure sealing; tunnel preps
Contents of Kit	four 1-gm syringes in any of the 15 available shades; 20 metal/plastic dispensing tips	one 1.2-cc syringe of Ultraseal XT Plus; one 1.2-cc syringe of 35% H3PO4 etchant; two 1.2- cc syringes of PrimaDry (a drying and priming agent); 12 Micro Tips; 10 Mini Tips	one 5-gm syringe each of shades A2, A3.5, and incisal; 100 20-gauge disposable syringe tips
Shades Available	A1, A2, A3, A3.5, A4, B2, B3,C2, C3, C4, C1/D1, light incisal, white opaque, opaque, gingival pink	opaque white, tinted translucent, A2 (universal)	A1, A2, A3, A3.5, A4, A5, B2, C2, C4, incisal, dentin
Composite Type	hybrid	hybrid	hybrid
Matrix	Bis-GMA	Bis-GMA	Bis-GMA

Product	VersaFlo	Tetric Flow
Manufacturer	Centrix, Inc. 770 River Road Shelton, CT 06484 (800) 235-5862 (203) 380-5944 (203) 380-5933 FAX	Ivoclar North America 175 Pineview Drive Amherst, NY 14228 (800) 533-6825 (716) 691-0010 (716) 691-2285 FAX
Recommended Uses	class IIIs, IVs, and Vs; small class IIs; conservative class Is; repairing porcelain and dentures; bonding fibrous splints; pit and fissure sealing; cementing veneers; restoring incisal abrasion; recontouring temporaries; sealing implant heads; sealing margins; conservative tunnel preps; gingival floor of class II restorations	class IIIs, IVs, and Vs; small posterior restorations; pit and fissure sealing; repairing composite and ceramic veneers; blocking out undercuts; cementing composite and ceramic restorations; splinting mobile teeth; cementing Vivadent's Sonicsys inlays
Contents of Kit	four single-dose, Needle-Tube tips each of shades A2, A3, B3, and C3 (Starter Kit #1), or shades A1, A3.5, A4, and opaque (Starter Kit #2); Mark II placement syringe	five 0.25-gm cartridges each of shades 105 (no equivalent Vita shade), A1, A2, A3, A3.5, A4, B3, T (translucent); shade guide, accessories
Shades Available	A1, A2, A3, A3.5, A4, B3, C3, and opaque	105 (no equivalent Vita shade), A1, A2, A3, A3.5, A4, B3, and T (translucent)
Composite Type	hybrid	ceromer
Matrix	Bis-GMA	Bis-GMA and UDMA